TP-1331
H.264 SD/HD Encoder

——User Manual

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Note:

The Operation of TP-1310 H.264 SD encoder is the same with that of the TP-1331 H.264 HD encoder. TP-1310 supports ASI and CVBS input, ASI and IP output. The SDI input and HDMI input service in the user manual is not available for TP-1310.

Beijing Topreal Technologies Co., LTD reserves the right of any modification to the product described in the manual. If there is any difference of the pictures or text in the manual from the physical object, please take the actual product as a standard.

Chapter I Brief Introduction of the Function

TP-1331 is the latest successive version of H.264/AVC Encoder plus the MPEG-2 to H.264/AVC Transcoder. TP-1331 accepts HD-SDI embedded audio, HDMI or CVBS input for encoding, the final output is available in ASI format or IP out. With extraordinary picture quality and significant bandwidth liberation, TP-1331 is the best choice for the digital head-end system that has high bandwidth requirements. TP-1331 SD/HD Encoder can provide excellent video performance even in CBR and VBR operating mode with low bit rate.

Main Features:

- Video coding complied with H.264/AVC High Profile Level 4.0;
- Video bit rate adjustment range: 1.1-10Mbit/s (SD); 3-20Mbit/s (HD);
- TS to TS transcoding MPEG-2 HD to H.264 HD/SD, or MPEG-2 SD to H.264 SD CBR and VBR bit rate modes available;
- Graphic resolution supports 1920*1080-24p, 1920*1080-60i, 1920*1080-50i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i;
- Audio coding adapts MPEG-1 Audio Layer 2 and Dolby AC-3.;
- Audio bit rate supports: 64Kbit/s, 96Kbit/s, 112Kbit/s, 128Kbit/s, 160Kbit/s, 192Kbit/s, 224Kbit/s, 256Kbit/s, 320Kbit/s, and 384Kbit/s;
- Excellent error recovery capability;
  Encoding resolution auto recognized.
- 1U single rack unit chassis, LCD panel operation.
- TS IP output and DVB ASI output synchronically.

Service Port:

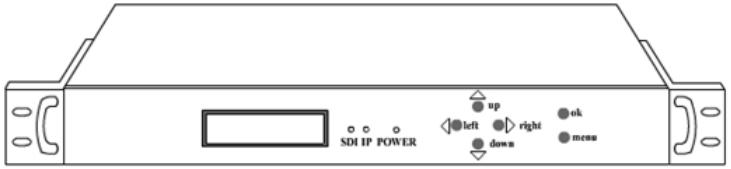
- Input video Port: SD/HD-SDI port (SD/HD encoding, support embedded audio), ASI port, analog composite video/S-VIDEO (optional), HDMI;
- Input audio Port: analog audio, left and right
- Output Port: DVB ASI Port, 100 Base-T Ethernet port (RTP protocol)
- Monitor port: RS 232 port.

Network Port:

- 100Base-T Ethernet port

Chapter II Specification of TP-1331 Encoder

2.1 Front Panel



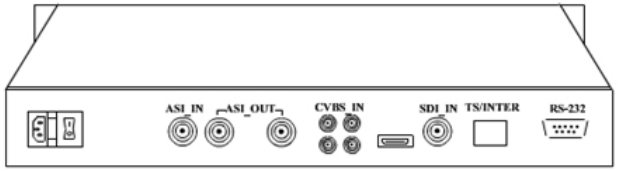
OK: enter the next menu or modify parameter or confirm operation;

Up/Down Key: to enter sub-menu or increase/decrease value;

Left/Right Key: to enter sub-menu or move cursor;

MENU Key: to return to previous menu or cancel modifying parameter;

2.2 Rear Panel



The ports in the rear panel in turn are (in left-to-right sequence): ASI IN, ASI OUT, ASI OUT, CVBS Audio IN, HDMI IN, HD-SDI IN, TS/Ethernet port, RS-232 port.

Chapter III System Structure and Operation

3.1 System Structure

- Main Menu
  - Signal Port Input — ASI HDMI SDI CVBS
  - ASI Infomation — Reload Service; Select Service
  - Video Setting — Input Format:720*576_50i/720*480_60i/720_50P/1280*720_60P/1920*1080_50i/1920*1080_60i/1920*1080_24P; Output Formal:720*576_50i/720*480_60i/720_50P/1280*720_60P/1920*1080_50i/1920*1080_60i; Bit Rate:; Bit Rate Mode:VBR CBR
  - Audio Setting — Audio Bit SETTING:64k/96k/128k/160k/192k/224k/256k/320k/348k Input; Au.Format:Nomal/Dolby AC-3
  - Advanced Setting — Defult Setting:Save Parameter:Record1/Record2/Record3; Load Parameter:Defult Parameter/Record1/Record2/Record3; LAN Setting:Set IP Address; Set IP Mask Add; Set IP Way; Mac Address; Ouput TS PID Setting:Video PID; Audio PID1; Audio PID2; PCR PID; PMT PID; SIT PID; Video Setting:Vid.Brightness:; Video Contrast:; Video Stauration:; Video Hue:; Video AGC:
  - TS IP Out — Protocol Opt:RTP/UDP; Muleticast Addr:; Muleticast Port:; Output Packet Num; Output Interval
  - Save Parameter — Need Rebuilding
  - Encoder Version

3.2 Panel Operation

3.2.1 Signal Port Format

This parameter setting is to set input video port. TP-1331 has ASI in, SDI in, HDMI in, CVBS in input port. The specific operation: enter Signal Port Format menu, the first line will display Signal Port Format, press OK to select video input port, then the second line will twinkle, press the left or right key, you will see ASI in, SDI in, HDMI in and CVBS in in sequence at the second line separately. Select one and press OK to confirm setting.

Note: This port is only available when encoding the SD analog signal.

3.2.2 ASI Information

This parameter setting is to choose the ASI-in program for the transcoding working mode. The specific operation: enter ASI Information menu, press OK, user would see from the left to right in turn:

3.2.2.1 Reload Service

Reload ASI program, press OK to reload the ASI-in program.

3.2.2.1 Select Service

Press OK to choose the program to be transcoded.

3.2.3 Video Setting

Set the video resolution and bit rate for the input/output TS for the encoder. The specific operation: enter Video Setting menu, press OK, user would see from the left to right in turn:

3.2.3.1 Input Format

Press OK to choose the resolution for the input video. There are 1920*1080-24p, 1920*1080-60i, 1920*1080-50i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i. Select one of them and press OK to confirm.

Note: this service is only available when the input signal is ASI signal. The video resolution set here should be the same with that of the source TS.

3.2.3.2 Output Format

Press OK to choose the resolution for the output video. There are 1920*1080-60i, 1920*1080-50i, 1280*720-60p, 1280*720-50p, 720*576-50i, 720*480-60i. Select one of them and press OK to confirm.

Note: this service is only available when the input signal is ASI or SDI signal. The video resolution set here should be the same with that of the source TS.

3.2.3.3 Bit Rate

The specific operation of the bit rate setting: enter Bit Rate menu, the first line shows Bit Rate and the second line shows the current bit rate transmission separately. Press OK to select bit rate. Then cursor appears where number can be modified in the second line. Press right or left button to move the cursor, press up or down button to modify the number where cursor indicates. Select the proper bit rates, press OK to confirm setting.

3.2.3.4 Bit Rate Mode

This item can set the bit rate transmission mode of the encoder. The specific operation: enter Bit Rate Mode menu, the first line will display Bit

Rate Mode, while the second line displays the current bit rate mode, press OK to modify, then the second line will twinkle, press left or right key, it will display VBR (Variable Bit Rate) or CBR (Constants Bit Rate) separately. Select one of the modes and press OK to confirm setting.

3.2.4 Audio Setting

Such parameter is the advanced setting to the Audio parameter of the encoder. The specific operation: enter Audio Setting menu, press OK to choose.

3.2.4.1 Audio Bit Setting

Such parameter is the setting to Audio Bit Rate. The available audio bit rate is 64kbps, 90kbps, 128kbps, 160kbps, 192kbps, 224kbps, 256kbps, 320kbps and 348kbps. The specific operation: enter Audio Bit Rate menu, the first line displays Audio Bit rate, press OK to enter modification status, then the second line twinkles, press left or right key, you'll see 64kbps, 90kbps, 128kbps, 160kbps, 192kbps, 224kbps, 256kbps, 320kbps and 348kbps at the second line. Select one of the bit rates and press OK to confirm setting.

3.2.4.2 Input Audio format

Set the input audio format when the encoder is in the transcoder mode. The specific procedure is: enter Input Audio Formats menu, the first line shows Input Audio Formats and the second line shows the current format. Press OK to select. Then the second line twinkles, Press right or left button to display Normal (select this format when in encoding mode) and Dolby AC-3. Select one of them and press OK to confirm.

Note: in transcoder mode, if the audio in the input TS adapts MEPG-1 or MPEG-2 mode, please select Normal format; if it is Dolby AC-3 mode, please select Dolby AC-3 format.

3.2.5 Advanced Setting

Such parameter setting is to set the parameter save, network, output PID and Analog Video output of TP-1331. The specific operation: enter Advanced Setting menu, press OK to enter. User will see from the left to the right in turn is:

3.2.5.1 Default Setting

Press OK to enter to set to save or read configuration file.

3.2.5.1.1 Save Parameter

This item is to save all the current parameters for the encoder. The encoder provides three save address, Record 1, Record 2 and Record 3. Specific operation: enter Save Parameter Menu; the first line displays Save Parameter and the second line shows the current save address. Press OK to enter modification status, then the second line twinkles. Press left or right key, Record 1, Record 2 and Record 3 will appear in the second line in circle. Select one of the addresses and press OK to confirm setting.

3.2.5.1.2 Load Parameter

Such item is to read all the current parameters of the encoder. The specific operation: enter Load Parameter menu, the first line displays Load Parameter and the second line shows the status of the current load parameter. Press left

or the right key, Default Parameter, Record 1, Record 2 and Record 3 in circle show at the second line. Select one of the items and press OK to confirm setting.

3.2.5.2 LAN Setting

Such item is to set LAN parameters for the encoder. The specific operation: Enter LAN Setting menu, press OK to enter, user would see IP Address, IP Mask Address, IP Way and the MAC Address from the left to the right.

3.2.5.2.1 Set IP Address

Such item is to set IP address for the encoder. The specific operation: enter Set IP Address menu, the first Line shows Set IP Address and the second line shows the current IP address of the encoder. Press OK to enter modification status, then cursor appears where the number can be modified, press left or right key to move cursor, press up or down key to modify the chosen number. Press OK to confirm setting.

3.2.5.2.2 Set IP Mask address

Such item is to set IP Mask address for the encoder. The specific operation is: enter Set IP Mask Address menu, the first Line shows Set IP Mask Address and the second line shows the current IP Mask address of the encoder. Press OK to enter modification status, then cursor appears where the number can be modified, press left or right key to move cursor, press up or down key to modify the number. Press OK to confirm setting.

3.2.5.2.3 Set IP Way

Such item is to set IP Way for the encoder. The specific operation: enter Set IP Way menu, the first line shows Set IP Way and the second line shows the current IP Way address of the encoder. Press OK to enter modification status, then cursor appears where the number can be modified, press left or right key to move cursor, press up or down key to modify the number. Press OK to confirm setting.

3.2.5.2.4 Set MAC Address

Such item can not be set but only be viewed.

3.2.5.2.5 Output TS PID Setting

This parameter is used to set the Video PID, Audio1(left) PID, Audio2 (right) PID, PCR PID, and PMT PID for the input MPEG-2 signal when the encoder is in transcoder mode. Only set these PID value correctly can the encoder do transcoding correctly. There are two audio PID setting (audio1 and audio2) in this item. If there is only one audio PID in the input TS, please set the two audio PID as the same.

3.2.5.2.6 Video Setting

Such parameter is the advanced setting of the video parameter to the encoder. There are five advanced setting for video in the encoder. The specific operation: enter Video Setting menu, the screen displays the current video parameter setting. Press left or right button, you can see Video Contrast, Video Saturation, Video Hue, Video AGC and Video Brightness in sequence in the first line and the specific value or status of the current parameter show

in the second line.

Note: This parameter is only available when encoding the SD analog signal.

3.2.5.2.6.1 Video Brightness

Such parameter is to adjust Video Brightness of the encoder. The adjustable range of the brightness is from 01 to 99. The specific operation: enter Video Brightness menu, the first line displays Video Brightness while the second line displays the value of the current Video Brightness. Press OK to enter modification status, and then cursor appear where number can be modified at the second line. Press left or right button to move cursor, press up or down button to modify the chosen number. Press OK to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

3.2.5.2.6.2 Video Contrast

Such parameter is the modification of the Video Contrast. The adjustable range of the Video Contrast is from 01 to 99. The specific operation: enter Video Contrast menu, the first line displays Video Contrast while the second line displays the value of the current Video Contrast. Press OK to enter modification status, and then cursor appear where number can be modified at the second line. Press left or right key to move cursor, press up or down key to modify the chosen value. Press OK to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

3.2.5.2.6.3 Video Saturation

Such parameter is the setting for the Video Saturation. The adjustable

range of the Video Saturation is from 01 to 99. The specific operation: enter Video Saturation menu, the first line displays Video Saturation while the second line displays the value of the current Video Saturation. Press OK to enter modification status and then cursor appear where number can be modified at the second line. Press left or right key to move cursor, press up or down key to modify the chosen value. Press OK to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

3.2.5.2.6.4 Video Hue

Such parameter is the setting for the Video Hue. The adjustable range of the Video Hue is from 01 to 99. The specific operation: enter Video Hue menu, the first line displays Video Hue while the second line displays the value of the current Video Hue. Press OK to enter modification status, and then cursor appear where number can be modified at the second line. Press left or right key to move cursor, press up or down key to modify the chosen value. Press OK to confirm setting.

Note: This parameter is only available when encoding the SD analog signal.

3.2.5.2.6.5 Video AGC

Such parameter is the setting for the gain of the analog video.

3.2.6 TS IP Output

Such parameter is the setting for the TS IP output for the encoder. The specific operation: enter TS IP Output menu, press OK. User would see from the left to right in turn:

3.2.6.1 Protocol Opt

Press OK to choose to the Protocol operation. There are two protocols available, UDP and RTP. Press left or right key to move cursor to one of them, press OK to confirm.

3.2.6.2 Multicast Addr.

Such parameter is the setting for the address of the multicast.

3.2.6.3 Multicast Port

Such parameter is the setting for the port of the multicast.

3.2.6.4 Output Packet Num

Such parameter is the setting for the quantity of the protocol packet for the port.

3.2.6.5 Output Interval

Such parameter is the setting for the interval of the output packet.

3.2.7 Save Parameter

Such parameter is the save all the modified parameter for the encoder. The specific operation: enter Save Parameter menu, press OK.

Note: only have saved parameter in this service would all the parameter done above is in effective.

3.2.8 Encoder Version

In this service, user can view the info of the hardware version as well as the software version of the encoder.

Chapter Four Instruction of the Indication Light

POWER

Power indicator light.

It is in red when the power is in normal working state.

SDI LOCK

Front panel indicator light.

When the encoder is working normally and the signal is locked, it is in green.

ALARM

Encoder alarm indicator light.

It is on when there is some errors in parameter setting.

Precautions

1. Please read this user manual before switch on TP-1331 H.264 SD/HD encoder.

2. Please make sure the video port is well connected when the machine is in the first use.

3. Do not open the cabinet of the box in case of electric shock or do damage to the encoder.

4. Please plug off the power when the encoder in not in use for a long time, please never use damaged electrical outlet to avoid fire or electric shock.

5. Never touch the electronic outlet with wet hand. Switch the power off at once if liquid leaks into the encoder.

6. Please put the encoder in a horizontal place and avoid pressing.

7. Do not put heavy objects on the encoder.

8. Put the machine in a ventilated, temper temperature place, avoids sunshine, moist, and strong shock.

9. When the machine is moved to a new place with sharp different temperature, please keep it off for one or two hours.

Appendix Default Parameter

Name	Default Value
Signal Port Input	ASI
Bit Rate	1.50Mbps
Video Brightness	55
Video Contrast	48
Video Saturation	48
Video Hue	50
Audio Bit Rate	128Kbps
Video PID (ASI Out)	0x1011
Audio PID (ASI Out)	0x1100
PCR PID (ASI Out)	0x1001
PMT PID (ASI Out)	0x0100
Video PID (ASI In)	0x A0
Audio PID (ASI In)	0x50
Audio PID 2 (ASI In)	0x50
PCR PID (ASI In)	0x134
PMT PID (ASI In)	0x 20
Set IP address	192.168.5.81
Set IP Mask address	255.255.0.0
Set IP Way	192.168.1.1
Bit Rate Mode	CBR
IP Out Net Protocol	RTP
IP Out MultiAddress	224.0.1.0
IP Out Port	1234
IP Out TS Number	Seven (188)
IP Out Interval	50 μs